



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,854	12/20/2001	Shijian Li	AMAT/5765/CMP/CMP/RKK	1816
32588	7590	03/22/2004	EXAMINER	
APPLIED MATERIALS, INC. 2881 SCOTT BLVD. M/S 2061 SANTA CLARA, CA 95050			GRANT, ALVIN J	
			ART UNIT	PAPER NUMBER
			3723	
DATE MAILED: 03/22/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/026,854

Applicant(s)

LI ET AL.

Examiner

Alvin J Grant

Art Unit

3723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) 11-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Claims 1-10 in Paper No. 8 is acknowledged. The traversal is on the ground(s) that polishing and buffing are not distinct terms, and that the apparatus recited in Group III claims utilizes the polishing article for depositing and planarizing a material on a substrate, and does not manufacture the polishing article. This is not found persuasive because the inventions are indeed distinct; therefore, the search required for Group I is not required for Groups II and III.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

2. Claim 3 is objected to because of the following informality:

In line 3, change "0.1 inches and about 1.0 inches" to read, "0.1 inch and 1.0 inch".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 1, 2, 4-6 and 9** are rejected under 35 U.S.C. 102(e) as being anticipated by Bennett et al. '806.

Art Unit: 3723

Bennett et al. discloses an article of manufacture for polishing a substrate comprising a polishing article having a polishing surface, a plurality of perforations formed in at least a portion of the polishing article for flow of material therethrough, and a plurality of grooves disposed in the polishing surface; a portion of the plurality of perforations intersect with a portion of the plurality of grooves on the polishing surface (Fig. 22); the polishing article comprises a conductive material or a dielectric material having conductive elements disposed therein (column 1, lines 20-22); the plurality of grooves form a pattern comprising substantially circular concentric grooves, an X-Y pattern disposed, or a triangular pattern formed on the polishing surface; a portion of the plurality of grooves are non-intersecting and are spaced between about 30 mils and about 300 mils apart (column 13, lines 35-53); the polishing article is disposed on a perforated sub-pad (38); the perforated sub-pad comprises a plurality of pores disposed therein for flow of material therethrough and the plurality of pores of the perforated sub-pad and the plurality of perforations in the polishing article are aligned for flow of material through the perforated sub-pad and the polishing article; and the polishing article has a center portion and a perimeter portion, the center portion having a plurality of perforations

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claim 3, 7 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bennett et al. in view of Kirchner '338.

Bennett et al. is described above. Referring to claim 3, Bennett et al. does not specifically disclose perforations having diameters ranging from about 16 mils to about 1/2 inch in diameter. Kirchner discloses a CMP apparatus comprising a polishing pad having perforations (column 6, lines 14-21) with diameters ranging from 16 mils to 1/2 inch so as to effectively drain the slurry. It would have obvious to one having

Art Unit: 3723

ordinary skill in the art at the time the invention was made to have made the apparatus of Bennett et al. to have perforations with diameters ranging from 16 mils to 1/2 inch as taught by Kirchner so as to effectively drain the slurry.

Referring to **claims 7 and 8**, Bennett et al. does not specifically disclose a polishing article having a perforated sub-pad. Kirchner discloses a sub-pad comprising perforations so as to drain the slurry from between the interfacing layers of the polishing article and the sub-pad. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have perforated the sub-pad of Bennett et al. as taught by Kirchner so as to so as to drain the slurry from between the interfacing layers of the polishing article and the sub-pad.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bennett et al. in view of Kirchner in further view of Pinheiro et al. '471.

Bennett et al. as modified is described above. The modified Bennett et al. does not specifically disclose the outer portion of the polishing article conducting electricity to the substrate surface. Pinheiro et al. discloses a polishing apparatus in which current is conducted to the surface of substrate (column 2, line 40) so as to facilitate the erosion of the substrate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have generated electricity in the surface of the polishing article as taught by Pinheiro et al. so as facilitate the erosion of the surface of the substrate.

Conclusion

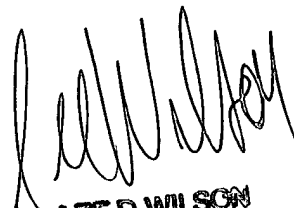
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alvin J Grant whose telephone number is (703) 305-3315. The examiner can normally be reached on Mon-Fri 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph J Hail can be reached on (703) 308-2687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3723

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ajg



LEE D. WILSON
PRIMARY EXAMINER